



Command Fitness Leader (CFL) Seminar

Extreme Conditioning Programs



Functional Training

- A term popularized by trainers and fitness companies
- Refers to movement in all planes, unrestricted, and focusing on core activation
- Includes balance, coordination, strength, speed, and power
- Most advocates consider barbell and machine training as non-functional



New ACSM/AHA Guidelines

150 minutes of moderately intense cardio per week

AND

Resistance training with 2 to 4 sets of each exercise, 2 or 3 days a week

AND

Flexibility exercises at least 2 or 3 days a week

AND

20-30 minutes of functional fitness training, 2 or 3 days a week



Alternative Training Method

- “*Alternative*” defined as: something which can be chosen instead of
- “*Method*” defined as: a way of doing something in a systematic way
- So, an “*alternative method*” could be defined as: implementation of certain practices aimed at accomplishing a specific task



What Drives Exercise Prescription?

- The “Marketing Machine”
 - Popular Media Outlets
- Fads / Gimmicks
- False claims and undeliverable expectations



What Should Drive Exercise Prescription?

- Grounded Evidence
- Measurable Outcomes
- Achievable Goals



Does being physically fit make you a fitness expert?





What constitutes a 'Fitness Professional'?



- High School Gymnast

- Stand-Up Comedian



- Choreographer

- Exercise Physiology Professor



- NSCA Staff Member



Fitness as an Industry

- Multi-billion dollar industry
- Marketing Based on:
 - Physical appearance / success
 - Scientifically-stretched information
 - Fads, gimmicks, etc.



Fitness as a Profession

- Prescription is developed to improve performance at a specific task
- Prescription is based off individual's current fitness level and capability
- Program design is developed to incorporate as many elements as necessary to improve performance over time



Disclaimer

- Not intended to “bash” any particular program
- Scientific rationale vs. anecdotal “reasoning”
 - Evidenced-Based Practice
- Identify the right tool for the specific job



CrossFit

Philosophy

- Universal Strength and Conditioning

Claims

- Designed for universal scalability making it the perfect application for any committed individual regardless of experience. Program delivers a fitness that is, by design, broad, general, and inclusive. Our specialty is not specializing.

Other Notes

- Theory and techniques come from their coaches that practice techniques in gyms
- Offer seminars, certifications, and training



P90X

Philosophy

- Muscle Confusion

Claims

- Many fitness plans lead to plateaus where the body becomes accustomed to the routines, diminishing results. P90X provides extensive variety of fat-burning, muscle-perfecting moves that continually challenge your body so you keep getting fitter every day.



Insanity

Philosophy

- Max Interval Training

Claims

- Perform long bursts of maximum-intensity exercise with short periods of rest



KettleWorx

Philosophy

- Cardio / Core / Resistance

Claims

- Complete home fitness program based entirely on kettlebell training. Designed to emulate a true personal trainer experience, appropriate for men and women of any fitness level.
- 20 mins of KettleWorx burns the same number of calories as an hour on a treadmill at moderate intensity.
- KettleWorx tones and conditions every muscle in the body simultaneously. Goal is basic health and fitness.



Ultimate MMA

Philosophy

- MMA Specific Periodization

Claims

- Program is based on scientific principles of strength and conditioning and fight-tested results.
- Program helps to develop:
 - power and endurance in your aerobic, anaerobic lactic and anaerobic alactic energy systems
 - strength and power in all major movement patterns
 - isometric endurance
 - improvements in all 7 biomotor abilities
 - sagittal, transverse, and frontal plane core stability



Slim in 6

Philosophy

- Cardio and Resistance Training

Claims

- Combines cardio with light resistance moves to burn fat and reshape your body in 6 weeks



5BX - Goodbye Couch

Philosophy

- Progressive Overload

Claims

- All inclusive workout that does not neglect any part of the body - including cardiovascular training.
- Program is simple and is based on the principle of progressive overload, i.e. exercises get progressively more challenging as your fitness levels, strength, and flexibility improve.
- Previously used by Canadian Air Force



AthLeanX

Philosophy

- Time Under Tension and Muscle Confusion

Claims

- Brief but intense strength training workouts (30-45 minutes / 3 times per week) that focus on the combination of ground based training “time under tension” and “muscle confusion” principles
- Incorporates “AthLean Burst” conditioning (not you typical cardio) twice a week



Max Workouts

Philosophy

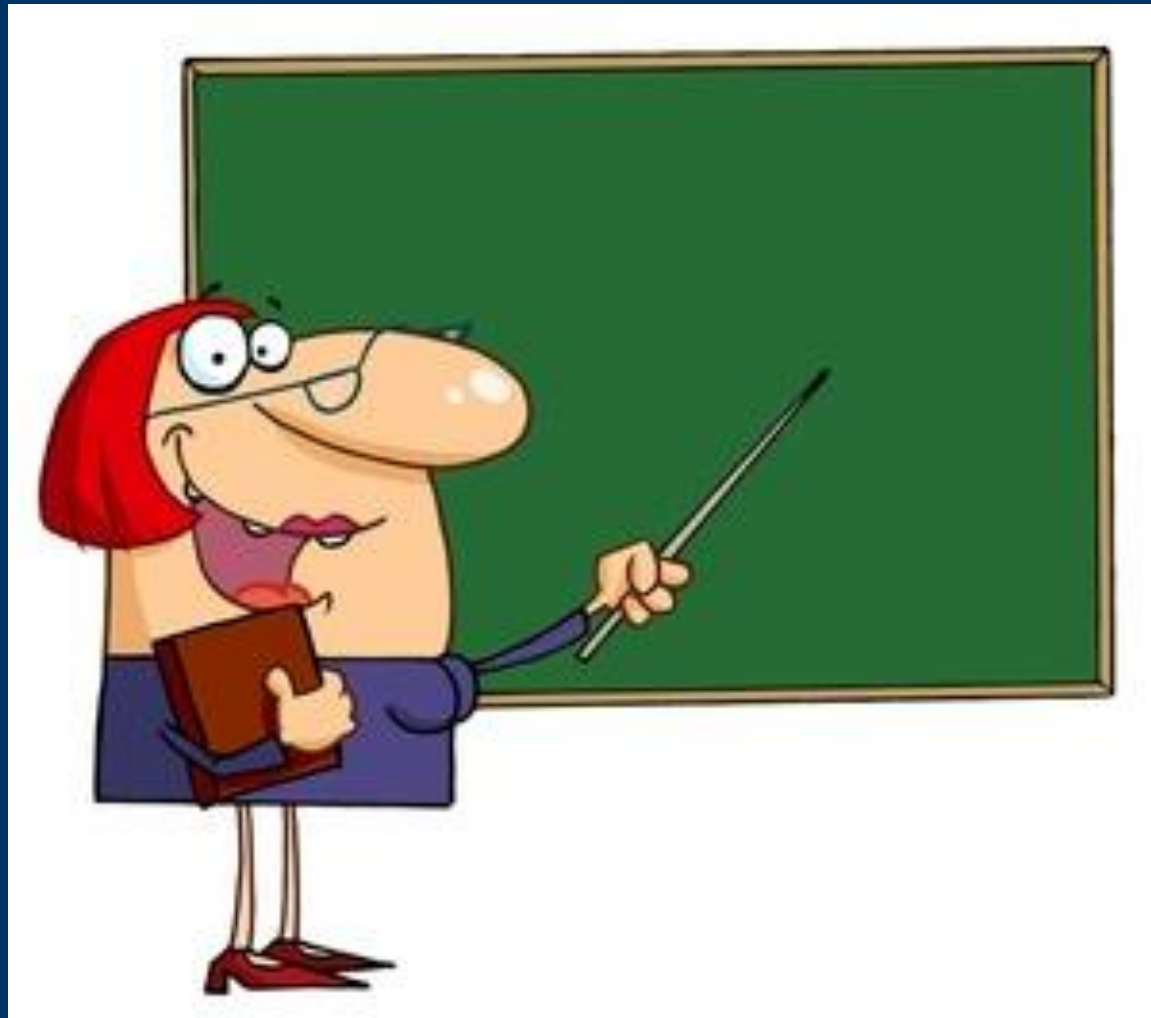
- High-Intensity, Interval, Circuit and Strength Training

Claims

- A revolutionary fitness program that focuses on high intensity interval training, circuit training, and strength training.
- High intensity interval workouts and circuits are proven to burn fat and build muscle in the shortest time possible.
- Max Workouts is designed using full body exercises with weights for maximizing your metabolism, fat burning, and lean muscle building.



What does the research say?





CrossFit Study

- May 2010
- (3) USA Majors
- Command and General Staff College





Study Specifics

- 14 participants
 - 9 Male
 - 5 Female
 - w/ varied degrees of CrossFit experience
- 4 physical fitness assessments in duplicate (i.e., weeks 1 & 8)
- 6 weeks of general CrossFit conditioning



Physical Fitness Assessments

- APFT
 - Push-Ups (2-min)
 - Sit-Ups (2-min)
 - 2-mile Run
- Fight Gone Bad
 - 3 rounds for reps/kcals:
 - 1-min Wall Ball Shots (20/14 lb)
 - 1-min Sumo Deadlift High-Pull (75/55 lb)
 - 1-min Box Jumps (20 in.)
 - 1-min Push-Press (75/55 lb)
 - 1-min Rowing
- Fran
 - 21-15-9 reps of Thrusters (96/65 lb) & Pull-Ups
- CrossFit Total
 - Shoulder Press (1-RM)
 - Back Squat (1-RM)
 - Deadlift (1-RM)



Study Results

- APFT
 - Push-ups:
 - 7.33% average increase
 - Greatest gain: 11.21% (M)
 - 2 decreases in total number
 - Curl-Ups:
 - 4.77% average increase
 - Greatest gain: 28% (M); 20.55% (F)
 - Several decreases in total number
- Fight Gone Bad
 - 20.79% average increase in generated power
 - Greatest gain: 52.37% (M); 27.97% (F)
 - 1 decrease in generated power
- Fran
 - 24.2% average increase in generated power
 - Greatest gain: 35.56% (M); 63.94% (F)
 - 2 decrease in generated power
- CrossFit Total
 - 16% average increase in load
 - Greatest gain: 26.3% (M); 33.8% (F)
 - All 14 increased generated power



Study Findings

- Effective method for increasing physical fitness of Soldiers
- Effective method for above-average athletes
 - overall 14.38% increase work capacity
- Despite a broad and generalized training program, performance improved on all 4 PFAs
- Improvements across multiple energy pathways
 - i.e., phosphagen, glycolytic, oxidative



Study Concerns

- Limited number of participants
- No control / alternative training method group
- Reported decreases in APFT performance
- All training sessions were conducted by CrossFit Level I certified instructors
- “acknowledge that any fitness program would likely achieve some increases in work capacity and fitness.”



Do These Programs Have Merit?

- If there is sound rationale behind the methodology, then the program has merit
- Stretching truth, abusing truth, and simply making false claims does not constitute a sound program
- Key is to assess the program for its value and determine if it is the right tool for the specific job in question



Concerns with ECPs

- Compromise technique to complete prescribed number of reps / sets
 - Leads to injury or worse
- Lack of specificity
 - Train “General Fitness”
 - Prevents excelling at anything
- Lack sophistication
- Lack reactivity



Recommendations on Rest

Recommended Rest Periods for Cardiovascular Training

Energy System	Exercise Duration	Recommended Work to Rest Ratio
Phosphagen	5-10 sec	1:5
Fast Glycolysis	15-30 sec	1:5
Slow Glycolysis	1-3 min	1:1
Oxidative	> 3 min	< 1:1

Recommended Rest Periods for Resistance Training

Strength	2-5 min
Hypertrophy	30 sec - 1.5 min
Endurance	< 30 sec



High reps is not recommended for all exercises



Power Snatch



Deadlift



Powercleans



Lawsuit against CrossFit

- In 2007, IT1 Mimms sued CrossFit for \$500,000 plus punitive damages
- Sustained 'great physical pain, mental anguish and inconvenience'
- In addition, 'incurred, and will incur in the future, significant medical expenses and permanent disability'



Rhabdomyolysis

- Condition where damaged skeletal muscle cells are broken down and released into the bloodstream.
- Some components, such as myoglobin, are harmful to the kidneys and can lead to kidney failure.
- Symptoms include muscle pain, vomiting, and confusion. Severity depends on extent of muscle damage and whether kidney failure develops.
- Treatment consists of generous quantities of intravenous fluids, but may include dialysis or hemofiltration in severe cases.



The Paradigm of Exercise

Do you give people what they
want or what they need?



Components of Exercise Prescription

- Progression Principle
- Individuality Principle
- Specificity Principle
- Overload Principle
- Adaptation Principle



How can all of these components
be successfully incorporated into
one workout?

Answer: They can't



Exercise Prescription

- Individualized
 - based off current level of health & fitness
- Systematic
 - sequencing of exercise
- Progressive
 - scalability of exercise
- Multifaceted
 - utilizes multiple types of exercise (strength training, cardiovascular, flexibility, etc.)
- Holistic
 - takes into consideration other components of health and wellness (e.g., nutrition, sleep, alcohol, smoking, etc.)



Exercise Prescription Cont.

- Progression will vary depending on the individual (e.g., age, gender, personality, genetics, etc.)
- Reassess at least 2x per year
- Keeping the individual motivated takes balance
 - Too easy / too slow = slow gains and/or loss of interest
 - Too hard / too fast = can be overwhelming and cause individual to give up or cause injury
- This type of prescription is focused on meeting individual fitness goals and maintaining a desired level of fitness



Exercise Prescription Cont.

- ACSM proposes the following:
 - Start at 40-50% of HRR and progress to 85% HRR
 - Start at 20-30 minutes per day and progress to as much as an hour per day
 - Start at 3 days per week and progress to as many as 7 days per week
 - Mode will be any aerobic activity **suitable** to the individual



Training Recommendations We Can All Agree With

- Proper form / technique is critical, not only to prevent injury but to optimize results
- Need to train all aspects of fitness
- Need to work hard without overtraining
- Measure results to determine effectiveness of training prescription



Questions?